



Sixth Annual IIASA-DPRI Forum  
Integrated Disaster Risk Management

*Risk and Challenges  
for Business and Industry*



ISTANBUL  
METROPOLITAN  
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Report of the session

# “Chemical hazards, industrial installations and natural disasters panel”

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Aim of the session was to get participant to think on industrial risk  
management...

...taking into account natural risks

# Speakers and contributions

- **Laura Steinberg**  
*State of the Art in Natech Research and Natech Policy* } State of art
- **Hatice Sengul**  
*Oil Spills and Hazardous Material Releases from Industrial Facilities due to Hurricane Katrina* }
- **Pavel Danihelka**  
*Natech Risk Management in the Czeck Republic: Case Studies of Flooding* } Case studies
- **Eser Durukal**  
*Industrial Earthquake Risk and Mitigation in Turkey* }
- **Ana Maria Cruz**  
*Awareness of Potential Natech Disasters among Households in a Japanese Community* } Management

## Laura Steinberg

### *State of the Art in Natech Research and Natech Policy*

- There exist a definition of natechs: “a **technological disaster** triggered by a **natural disaster**” ... but ...
- **Important aspects** of natechs (multiple technological accidents, chains of impacts, lack of resources to face emergency, hampering of SAR activities...)
- Thus, natechs require **specialized planning** for mitigation, response, and recovery
- There exist acts and regulations to prevent impacts, but mainly addressed to face **single risks** (except CalARP)
- Some needs: central data reporting, case studies and cost assessment

## Hatice Sengul

### *Oil Spills and Hazardous Material Releases from Industrial Facilities due to Hurricane Katrina*

- The **peculiarity** of the disaster:
  - the heart of Oil production in USA
  - a very huge city
  - a multi-ethnic community
  - a natural sensitive environment
- The **dimention of the area** hit by the hurricane and the high exposure of hazardous industries justify the quantity of hazmat releases (about 470)
- **Different** kind of hazmats were released...and this implies to consider **different** actions to be taken during the emergency
- It could have been a **more severe** environmental catastrophe because of the location

## Pavel Danihelka

### *Natech Risk Management in the Czeck Republic: Case Studies of Flooding*

- Three major technological accidents triggered by natural events took place since the European Community "SEVESO" Directive has been adopted
- During the 2002 flood, protections based on **100-years** water failed because of the **300-years** water
- There were releases in the air and contaminated sediments **moved** with water
- Another case study demonstrates that attention has to be paid to all the stages of processes **inside** the production establishments
- but even **external conditions** (climate changes) has to be taken into account to prevent natechs

## Eser Durukal

### *Industrial Earthquake Risk and Mitigation in Turkey*

- **Damages:** direct physical damages, indirect physical damages and losses (fire, hazardous material release, chemical spills), economic losses
- **Resolutions:** Industrial losses in general, Industrial sector, Industrial facility
- A **Questionnaire Survey of Industrial Damages** in the highest seismic intensity zones during 1999 earthquake has been distributed to assess direct physical damages and losses due to business interruption
- Collected data has been **grouped in 8 industrial sectors**
- **The majority of the plants in the Istanbul region are expected to be in the intensity zone VIII-IX ...** then the losses to be sustained by these facilities are expected to be very similar to the types of losses and damages in the same intensity zone in the Kocaeli earthquake.

Ana Maria Cruz

## *Awareness of Potential Natech Disasters among Households in a Japanese Community*

- The aim of the research is to assess household **awareness** of and **preparedness** for multiple disasters in a Japanese community through a random mail survey to an area prone to both natural and technological risks
- The submitted questionnaire was about awareness, perception, experience and preparedness to natural and technological disasters
- Main preliminary findings of the questionnaire:
  - There is a significant awareness about **single** natural hazards
  - Awareness of potential technological disasters **is NOT negligible**
  - About preparedness, in case of natech disaster, households are more likely to **call authorities** (57.9%) (...and this could be explained because they are aware there are no natech emergency plans)

# Discussion and final comments

- Discussion:
  - the need of reporting officially and clearly damages and releases in industries
  - the importance and the difficulty in assessing social, economical and environmental costs
  - the role of environmental justice (problems related to time and scales)
- Natechs are a huge family of phenomena (work on the definition has to be done to better address research)
- Natechs are not the sum of different disasters but they are the results of integrated chains of failures and damages so they need a specific management ... but ...shared assessment methodology are still missing
- There are many difficulties in defining in advance an area of investigation to assess risk factors and to implement mitigation strategies
- Facing natech risk it's essential to take into account all stages of facility life cycle but even external phenomena (like the global climate change)
- Attention has to be paid on the way we collect and present data to stimulate industries to consider natural risk as a real threat for their businesses
- It's significant to take care of household awareness in facing natechs to facilitate communication and self-protection